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EXAMINER

CAPUTO, LISA M

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/051,650

Applicant(s)

CONNOLLY ET AL.

Examiner

Lisa M Caputo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because the Figures are photocopied photographs which are too dark to distinguish the reference numbers and which of the different parts of the invention the reference numbers are referring to.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 9 and 15-16 are objected to because of the following informalities:

Regarding claim 9: Please add a period to the end of the claim to make it a grammatically correct statement.

Regarding claims 15-16, line 1 of each: Please replace "including" with -- includes--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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3. Claims 1-6, 8, and 12-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kodukula et al. (U.S. Patent No. 6,195,053, from hereinafter "Kodukula").

Kodukula teaches an antenna, module and imager for a barcode reader having all of the elements and means as recited in claims 1-6, 8, and 12-18. Kodukula discloses an apparatus 500 (non-electrically conductive housing as recited in claim 8) that has a space for inserting an optical reading assembly 510 (communication arrangement). The space is lined with an antenna 520 (antenna) formed to occupy the space proximal to the optical reading assembly so that the assembly may fit into the apparatus 500 (see Figure 5, col 4, lines 37-44), the antenna being between the surface of the cover and the edge of the housing as recited in claim 12 of the instant application. Kodukula further discloses that in FIG. 6, another illustrated embodiment is shown. In this embodiment, a hand-held data terminal 600 (unitary housing as recited in claim 17 in the instant application) is capable of reading optical indicia 604 and detecting radio frequency identification transponders 606. A display 608 is utilized so that the user may read data collected by the apparatus 600 and monitor and control the operation of the reader 600. An optical reading assembly 610 (communication arrangement in the instant application) and antenna 620 (antenna mounted in the static position in the instant application, further coupled by a wire to the communication arrangement as recited in claims 6 and 14-15 of the instant application) is positioned in the terminal. In this example, the optical reading assembly 610 is capable of reading optical indicia 604 while the antenna 620 is used to query the radio frequency transponder 606. The optical indicia 604, for example a bar code, and the radio frequency identification transponder

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606 are contained as one unit that may be placed on a variety of articles. For instance, the combination tag may be placed on goods in a supermarket, warehouse, stock room, etc. FIG. 7 is a functional block diagram of one illustrated embodiment the device in the form of a reader 600 configured to read machine-readable symbols and RFID tags. The reader 600 may include a data and power bus 612 for coupling together the various components of the reader 600, all housed in a reader housing 613. The reader 600 may include an internal power source such as a rechargeable battery (not shown) or can receive power from an external power source such as a wall outlet by way of an electrical cord (not shown). The reader 600 includes a trigger 611 to control the reading operations. The reader 600 also includes a microprocessor 614 (part of the communication arrangement in the instant application) for controlling the various components and for processing data according to instructions stored in a random access memory ("RAM") 616 or a read-only memory ("ROM") 618. The reader 600 can include an input/output port ("I/O") 620 for allowing communications with an external device, such as an external host (not shown) (see Figures 6-7, col 4 line 45 to col 5 line 11). In addition, as shown, the scan engine 630 including the optical detector 632 are housed in the reading assembly housing 111. The reading assembly housing 111 includes the optical window 112, that passes light reflected from the symbol 604 (FIG. 6) to the optical detector 632. The window 112 (cover in the instant application) can be an opening or can include a membrane sufficiently transparent to pass light to the optical detector 632. Thus, the scan engine 630, optical detector 632, reading assembly housing 111, and antenna 626 form a module that can be easily fitted into the reader

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housing 613. Modularization permits readers 600 to be easily customized on the manufacturing line. Modularization also permits easy repairs or upgrades to existing readers (see Figures 1-7, col 6 lines 21-33). Regarding claim 13, Kodukula discloses that the optical reading assembly exists for two purposes, to house the optical reading assembly 110 and to support the antenna 120 (see Figure 1, col 3, lines 38-48), meaning the antenna is free from the device housing and is part of the optical reading assembly that stands alone in this embodiment. Regarding claim 16, Kodukula teaches that suitable optical detectors include photodiode arrays, one- and two-dimensional semi-conductor arrays, linear and two-dimensional charge coupled devices ("CCD"), and Vidicons (see col 6, lines 2-5), which have multiple lenses (i.e. covers) and in the embodiment allow for different arrangement of the antenna. Further, although specific embodiments of, and examples for, the invention are described herein for illustrative purposes, various equivalent modifications can be made without departing from the spirit and scope of the invention, as will be recognized by those skilled in the relevant art. The teachings provided herein of the invention can be applied to any device including an antenna and optical assembly module, not necessarily the illustrated reader generally described above. As used herein, the term radio frequency is not limited to the radio frequency portion of the electromagnetic spectrum, but can include other portions the electromagnetic spectrum for wireless communications (as recited in claim 5 of the instant application). The term "radio" is used herein to describe any receiver, transmitter, transceiver, or other device for wireless communications in any portion of the electromagnetic spectrum (see col 6, lines 37-52).

Hence, Kodukula teaches a device that comprises a communication arrangement within a housing having an opening, a cover mounted over the opening, and an antenna mounted within the housing as recited in claims 1-4 and 18 of the instant application.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodukula in view of Nguyen et al. (U.S. Patent No. 4,940,992, from hereinafter "Nguyen"). The teachings of Kodukula have been discussed above.

Regarding claim 7, Kodukula fails to teach that the opening of the housing is a half of the wavelength of the signals at a frequency of operation, and that the opening operates as a loop antenna.

Nguyen discloses that with respect to the figures, FIGS. 1-5 illustrate a construction and performance of a preferred embodiment of the present invention, a low profile hybrid antenna providing a balanced response characteristics to the magnetic and electric field components of an electromagnetic wave. Reference is directed to FIG. 1 which shows an isometric view of the preferred embodiment of the present invention, a low profile antenna 10 capable of operating efficiently over a wide frequency range from 150 MHz to 1000 MHz. As shown, antenna 10 comprises a core 16 and a conductor 14. Conductor 14 is formed into a single turn loop having substantially horizontal parallel opposed sides 15 and 17A-B and substantially vertical parallel opposed sides 19 and 21. Side 17A-B terminates in integral connection tabs 18 which are located symmetrically about the midpoint of side 17, thereby providing a center fed antenna configuration. This single turn loop functions in a conventional manner as a magnetic dipole with the long dimension of the loop typically one-quarter wavelength or less in length at the operation frequency. However, as shown, the loop geometry is somewhat unconventional in that it has an extremely low profile, as is required in a thin sheet-like receiver, and that the connection to the antenna is at the midpoint of the loop, rather than at an endpoint of the loop, as has been typically done previously. The choice of the center fed configuration is not arbitrary, but rather is based on the fact that a substantial improvement in antenna sensitivity is obtained over the end fed configuration when the aspect ratio of the sides of the loop, i.e. the horizontally positioned sides 15 and 17 are substantially longer than the vertically positioned sides



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19 and 21 as will be discussed with reference to FIG. 5 (see Figures 1-5, col 2 line 40 to col 3 line 5).

In view of the teaching of Nguyen it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a loop antenna and operate at half of a wavelength of the signals because the half-wave electric dipole provides for an antenna responsive to the magnetic and electric fields of an electromagnetic wave. Also, it is favorable to have only one opening with a half wavelength with which to convey information because additional openings would provide for mechanical difficulties.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kodukula in view of Ishikawa (U.S. Patent No. 5,162,640). The teachings of Kodukula have been discussed above.

Regarding claim 9, Kodukula fails to teach that the housing is composed of an electrically conductive material.

Ishikawa teaches a pen type optical reading device. Ishikawa discloses a pen-type bar code scanner shown in those drawings has a housing which comprises a metal-made outer case 1 constructed of three tubular cases 2, 3, 4 threadedly secured to each other, and a cap 5 covering the distal end of the outer case 1, as will be seen from the sectional views of FIGS. 1(a) and 1(b) and the exploded perspective view of FIG. 2 (see Figures 1-2, col 8, lines 49-55).

In view of the teaching of Ishikawa, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a metal electrically

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conductive housing for a barcode scanner as recited by Kodukula because a metal housing is durable and cost effective.

7. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodukula in view of Knowles (U.S. Patent No. 4,805,175). The teachings of Kodukula have been discussed above.

Regarding claims 10-11, Kodukula fails to specifically teach that the cover is composed of a substantially non-electrically conductive material, more specifically a plastic or glass material.

Knowles teaches an ultra-compact hand-held laser scanner. Knowles discloses that the front wall 38D includes an opening in which a window 40, formed of an anti-reflective, wavelength selective glass, or some other beam transparent material, e.g. plastic is located (see Figure 3, col 4, lines 23-26). It is well known in the art that glass and plastic are favorable transparent non-electrically conductive materials for which light beams can pass through and are able to scan barcodes and other media.

In view of the teaching of Knowles it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a plastic or glass non-electrically conductive material for the cover of the barcode scanner of Kodukula because these materials are readily available, cost-effective, and efficient for their use in allowing light beams to pass through and scan different optical media.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ***Lisa M. Caputo*** whose telephone number is (703) 308-

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**8505.** The examiner can normally be reached between the hours of 8:30AM to 5:00PM Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 703-305-3503. The fax phone number for this Group is (703)308-7722, (703)308-7724, or (703)308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [[lisa.caputo@uspto.gov](mailto:lisa.caputo@uspto.gov)].

*All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

LMC

March 5, 2003

  
MICHAEL G. LEE  
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